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ANGLED AXIS MACHINE VISION SYSTEM AND METHOD

Abstract

Embodiments of the invention comprise an angled axis machine vision system having a camera system angled with respect to an axis of the coordinate system of the environment. This configuration has all of the advantages of the horizontal alignment while eliminating the inherent problem of utilizing horizontal and vertical lines in an environment for distance calculations when the horizontal and vertical lines are parallel or close to parallel to an axis lying between camera centers of the camera system. With the camera centers angled about the roll axis, horizontal and vertical lines in the environment appear as angled lines in images taken from the cameras enabling more accurate distance calculations. With the camera centers angled downward about the pitch axis objects that are near are more readily observed. With angled axis rotation it is still possible for lines in the environment to be parallel to the axis defined between the camera centers, but these instances are rarer than horizontal or vertical lines in real world environments. Embodiments of the invention may comprise a cam-

era mount that is rotatably mounted to a support wherein two sets of pictures from each of the cameras may either be utilized. In one embodiment the two sets are compared for the number of lines which are parallel to the axis of the camera centers and the set of pictures with the least lines parallel is used for distance calculations. In another embodiment, the two sets are utilized to correlate the distances derived from each set of pictures.